Field Waste Disposal

FMST 0603
17 Dec 99

TERMINAL LEARNING OBJECTIVES:

1. Given a combat environment (day and night), and individual combat equipment, perform field waste disposal, per the references.(FMST.06.03)

ENABLING LEARNING OBJECTIVES:

1. Without the aid of reference materials, and provided a list of methods of waste disposal, select the most common methods of human waste disposal used in the field, per the student handbook. (FMST.06.02e)
2. Without the aid of reference materials, when provided a list of methods of waste disposal, select the common method of liquid waste disposal for a given field situation, per the student handbook.(FMST.06.02f)
3. Without the aid of reference materials, and provided a list of methods of waste disposal, select the common method of rubbish / garbage waste disposal for a given field situation, per the student handbook. (FMST.06.02g)

OUTLINE:

A. WASTE
   1. DEFINITION- All types of liquid and solid byproducts resulting from living activities of humans or animals

B. TYPES OF WASTE
   1. HUMAN WASTE
      a. Feces
      b. Urine
      c. Blood/body fluids

   2. LIQUID WASTE
      a. Water from bathing
      b. Liquid kitchen waste (grey water)

   3. GARBAGE
      a. Peelings, slices, or other semisolid / solid organic materials resulting from food service operations

   4. RUBBISH
      a. Boxes, cans, paper, or plastics

C. GUIDELINES FOR LATRINE PLACEMENT

   1. Distance
      a. At least 50 feet from berthing areas
      b. At least 100 yards from mess facility

c. At least 100 feet from water source
2. Latrines must drain away from water source
3. Do not dig latrines below the water table
4. Latrines must be closed and marked with type and date as tactical situation permits

D. GUIDELINES FOR GARBAGE PIT DISPOSAL DEVICE PLACEMENT
1. Distance
a. recommend less than 30 yards from mess area
b. recommend at least 100 feet from water source
2. Incinerators
a. recommend at least 50 yards downwind from camp

E. FIELD SANITATION DEVICES USED FOR FECAL DISPOSAL
1. CAT HOLE
a. Used by individual troops on the march
b. Dug with an E-Tool, 1 ft wide x 1 ft deep
c. Covered immediately after use

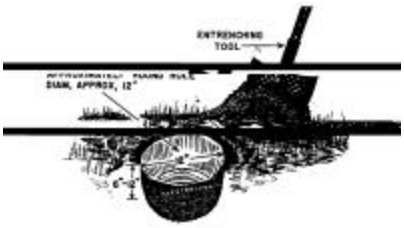

Figure 1-Cat Hole

2. STRADDLE TRENCH
a. Used in temporary bivouac for one to three days
b. Four trenches required for 100 people
c. Construction
1. 1 ft wide x 2 ½ft deep x 4 ft long
2. Put wooden planks on top of trench sides
3. Put a forked stick and a coffee can (#10) at end for toilet paper

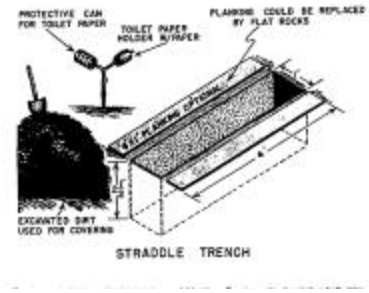

Figure 2-Straddle Trench

3. DEEP PIT LATRINE WITH "4 HOLER" BOX
   a. Used in temporary camps with very low water tables
   b. Each seat is for 12-20 people
   c. One 100 man unit requires two-four seat latrine boxes
   d. Construction
      1. Square Configuration
         a) Box – 5 ft wide x 5 ft long x 18" height
         b) Pit – 4 ft wide x 4 ft long x 4 ft diameter
      2. Rectangle Configuration
         a) Box – 2 ½ft wide x 8 ft long x 18" height
         b) Pit – 2 ft wide x 7 ½ft long x 4 ft diameter

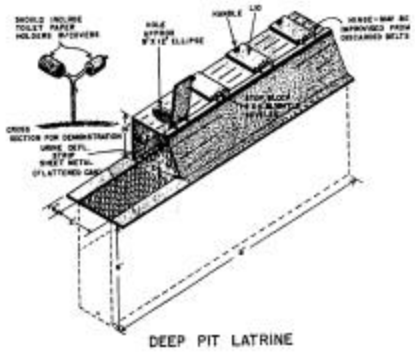

Figure 3-Deep Pit Latrine

4. BURN OUT BARREL LATRINE
   a. Most common method of human waste disposal device used in the field
   b. Used where water table is high or where digging is difficult
   c. Encourage personnel to use urinals instead of latrine since additional fuel is required to burn urine and feces
   d. Two sets of four seats required for 100 people
   e. Operation
      1. Prime cans with 3" of diesel
      2. Burn cans daily with one part gas to four parts diesel
      3. Clean and disinfect daily
   f. Tactical considerations - i.e. cannot use in the vicinity of the enemy

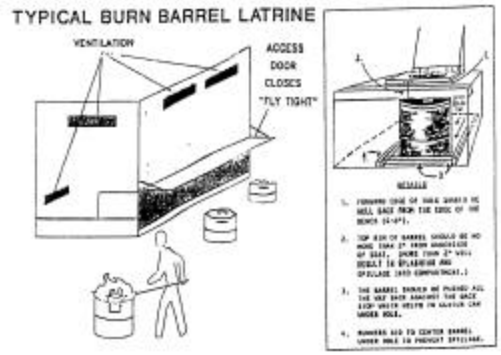

Figure 4 – Burn Out Latrine

5. CHEMICAL TOILETS
   a. Latrines maintained by contracted services
   b. Commonly utilized in garrison and during OUTCONUS training operations

6. MOUND LATRINE
   a. Used where water table is high or rock formations prevent digging
   b. Built with logs and compacted dirt

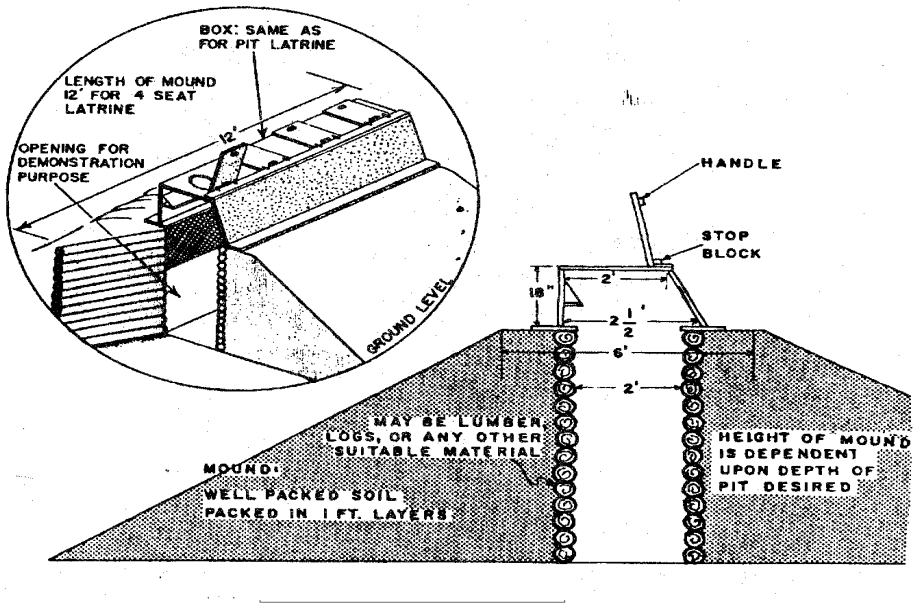

Figure 5- Mound Latrine

7. BORED HOLE LATRINE
   a. Drilled by utility truck
   b. Hole 18” in diameter x 15-20’ deep

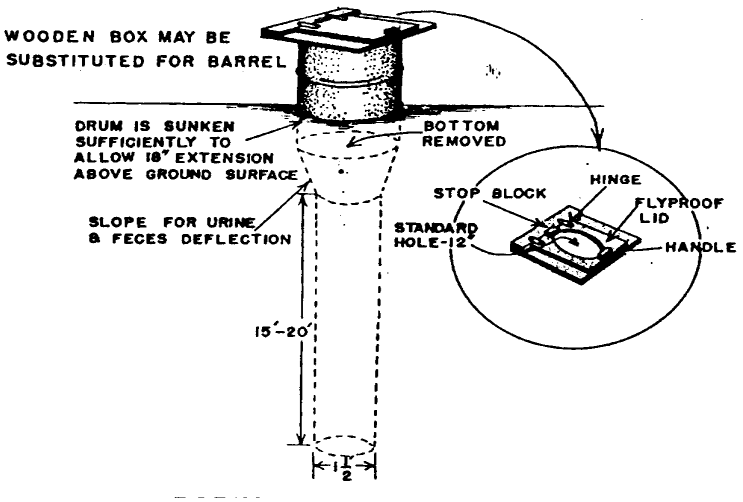

Figure 6 - Bored Hole Latrine

F. FIELD SANITATION DEVICES USED FOR URINE DISPOSAL

1. URINE PIPES AND SOAKAGE PIT
   a. Dig a pit measuring 4ft x 4 ft x 4ft
   b. Fill pit with rocks, flattened tin cans, broken bottles, rubble
   c. Ventilation shafts will be at each end of the pit
      1. Inserted into pit within six inches of the bottom
      2. Shall extend six to twelve inches above ground level
   d. Urine pipes
      1. Six pipes of one inch diameter inserted at a slight angle 8 inches below ground
      2. A screen funnel, made of moisture proof material is placed on top of pipe
   e. Oil soaked burlap is placed on top of pit then covered with 6 inches of compacted earth
   f. One pipe can accommodate 20 men

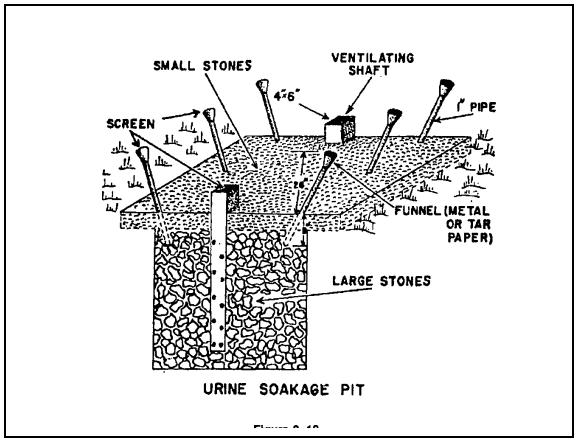

Figure 7 –Urine Soakage Pit

2. URINE TROUGH AND SOAKAGE PIT
    a. Used where the water table is low
    b. A 10 foot long, "V" or "U" shaped trough is made with a splashboard inserted in the middle
    c. A smaller drain trough or pipe is attached to one end to drain into a soakage pit
    d. Construct it so the end with drain trough or pipe is lower than the other end
    e. One trough will service 100 men

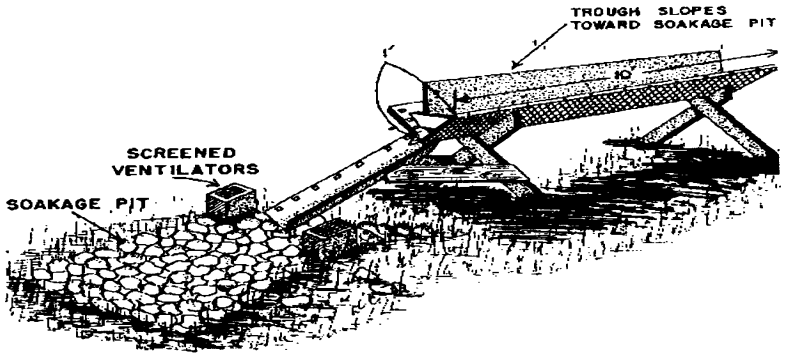

Figure 8 –Urine Trough and Soakage Pit

G. FIELD SANITATION DEVICES USED FOR LIQUID WASTE DISPOSAL
    1. SOAKAGE PIT
        a. Dig a pit 4ft x 4ft x 4ft, similar to urine soakage pit, but without the pipes
        b. Adequate for 200 people per week
        c. Two weeks or more, dig two pits and use on alternating days
        d. Close pit when it becomes clogged. Label with "SOAKAGE PIT CLOSED (date)"

    2. SOAKAGE TRENCH
        a. Used when ground water level or rock formation prevents use of soakage pit
        b. May be used with pail or grease trap
        c. Dig a central pit 2ft wide x 2ft long x 1ft deep, with trenches extending to 6ft long x 1 ft wide and 1 ½feet deep from the farthest end of the pit on a gradual downward slope to 1 foot deep to the center of the pit

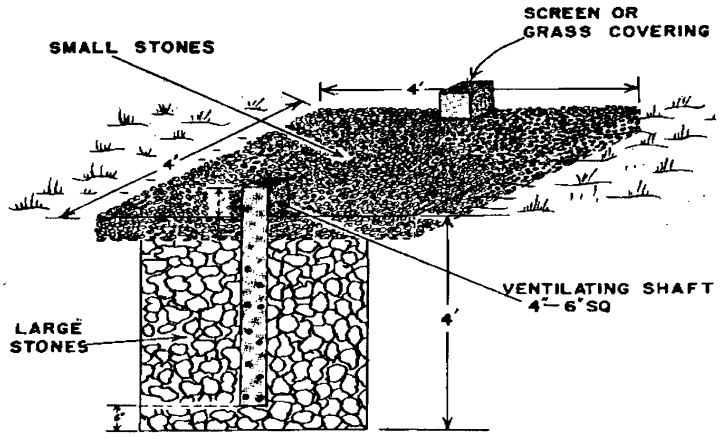

Figure 9 – Soakage Trench

3. EVAPORATION BEDS
    a. Used to dispose of liquid kitchen wastes in locations where soakage pits and grease traps are impractical
    b. Recommended for periods of short duration in hot, dry climates where soakage pits cannot be dug or where soil is too hard to absorb moisture

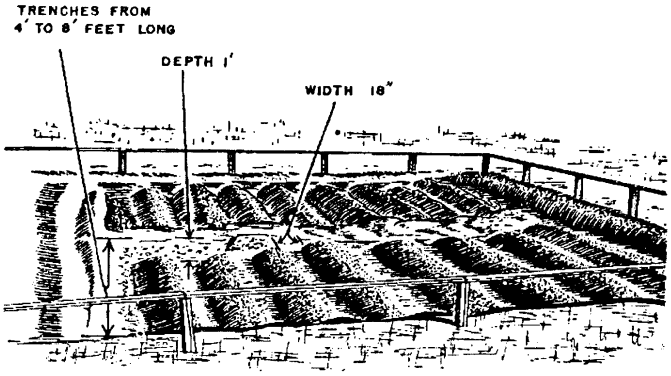

Figure 10 – Evaporation Bed

4. FILTER GREASE TRAP
    a. Made from 55 gallon drum, with the top removed and the bottom perforated
    b. Filled in three layers with crushed rock or large gravel on bottom, progressively smaller gravel in the middle, and a 6 inch layer of sand, ash, charcoal or straw placed on top
    c. The drum is covered with burlap to catch large debris
    d. Burlap is removed daily, burned or buried and is replaced with a clean one
    e. Barrel installed in center of a soakage pit, 2 inches below ground

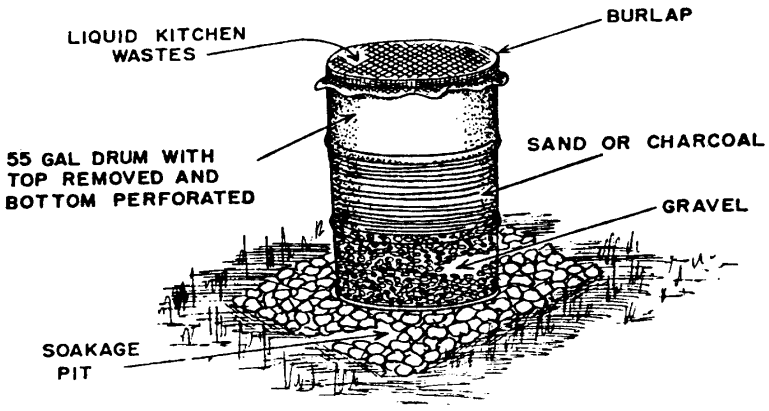

Figure 11 –Filter Grease Trap

5. BAFFLE GREASE TRAP
    a. Most effective device for removing grease
    b. Made from a water tight container and divided into three equal parts by hanging baffles
    c. An outlet pipe is attached to container that extends outward to the center of and 1 foot below the surface of a soakage pit

d. Skim grease from first and second chambers daily and bury grease

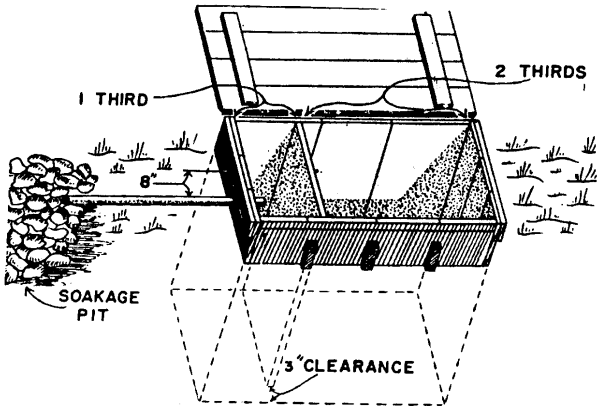

Figure 12 –Baffle Grease Trap

H. FIELD SANITATION DEVICES FOR GARBAGE AND RUBBISH DISPOSAL

1. GARBAGE PIT
   a. Preferred method for overnight halts
   b. Pits are 4 ft square and 4 ft deep
   c. Pit will service 100 people per day

2. GARBAGE TRENCH
   a. Trench is dug 2 feet wide, 4 feet deep and long enough to accommodate the next day's garbage
   b. A continuous trench is used for stays of 2 days or more

3. INCLINED PLANE INCINERATOR
   a. Somewhat protected from wind and rain
   b. A sheet metal plane is inserted through three telescoped 55 gallon drums with ends removed
   c. Drums are laid on an incline with metal plane extended 2 feet beyond upper end of drums to serve as a loading platform
   d. A grate is placed on lower end where a wood or oil fed fire is placed
   e. Garbage is pushed from top of mechanism down to lower end

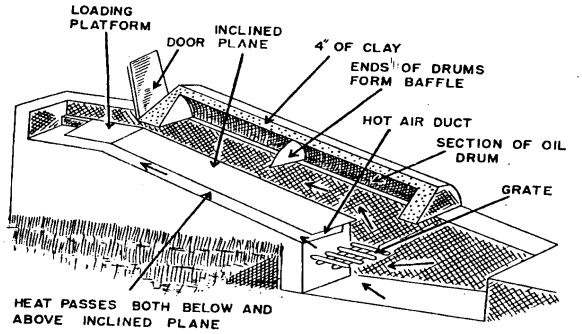

Figure 13 –Inclined Plane Incinerator

4. BARREL INCINERATOR
    a. Made of a 55 gallon drum with both ends removed, punching many holes near the bottom, and inserting metal rods or small pipes through the barrel, several inches above the holes
    b. Metal rods serve as a grate, the punched holes allow air draft
    c. The barrel is supported several inches above the ground with large stones, bricks or dirt filled cans so that a fire can be built under it
    d. Garbage should be drained before use
    e. Commonly used for rubbish incineration

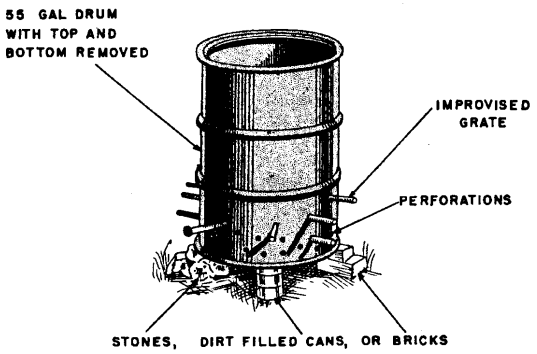

Figure 14 –Barrel Incinerator

REFERENCE (S):

1. Manual of Preventive Medicine (NAVMED P-5010-9)
2. Field Hygiene and Sanitation (FM 21-10)